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Filing Date: September 18, 2000

Title: BLEACHED BRAN AND BRAN PRODUCTS AND METHODS OF PREPARATION

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IN THE CLAIMS

Please amend the claims as follows:

- 1-20 (Canceled)
- 21. (Currently Amended) A bleached bran product comprising bleached bran derived from a cereal grain, the bleached bran product produced by treating bran with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching process <u>under a pressure of about 103.4 to 138 kPA (15 to 20 psi) and a temperature greater than 100 °C for no more than five (5) minutes</u>, the bleached bran product having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran, the bleached bran product suitable for admixing with whole wheat flour to produce white whole wheat flour having an L value on the Hunter scale of at least about 82.
- 22. (Previously Presented) The product of claim 21 wherein about five (5)% of the bleached bran product, by weight, is added to the whole wheat flour.
- 23. (Original) The product of claim 21 having an L value of between about 82 and 93.
- 24. (Previously Presented) The product of claim 21 wherein the water absorption value is up to about six times higher than native bran.
- 25. (Original) The product of claim 21 wherein native flavor components are reduced or deactivated.
- 26. (Canceled)
- 27. (Previously Presented) The product of claim 21 wherein the antioxidant activity is increased due to increased availability of ferulic acid.

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28-30. (Canceled)

31. (Currently Amended) A whole wheat flour comprising a bleached bran product produced by treating bran derived from a cereal grain with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching process <u>under a pressure of about 103.4 to 138 kPA (15 to 20 psi)</u> and a temperature greater than 100 °C for no more than five (5) minutes, the bleached bran product having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran, the whole wheat flour having an L value on the Hunter scale of at least about 82 and a dietary fiber content of about 10 to 12%.

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- 32. (Original) The whole wheat flour of claim 31 substantially free of hydrogen peroxide.
- 33. (Original) The whole wheat flour of claim 32 prepared from soft white wheat or hard white wheat.
- 34. (Original) The whole wheat flour of claim 33 prepared from light bran.
- 35. (Original) The whole wheat flour of claim 33 having a pH of about 6.3 to 6.7.
- 36. (Original) A finished baked good prepared from the whole wheat flour of claim 31.
- 37. (Original) The whole wheat flour of claim 31 admixed with sugar, salt, and leavening.
- 38. (Currently Amended) A bleached bran product comprising bleached bran derived from a cereal grain, the bleached bran product produced by treating bran with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching process <u>under a pressure of about 103.4 to 138 kPA (15 to 20 psi)</u> and a temperature greater than 100 °C for no more than five (5) <u>minutes</u>, the bleached bran product having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran, the bleached bran product suitable for use as an additive in foods.

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39. (Previously Presented) The bleached bran product of claim 38 wherein the product is added to foods selected from the group consisting of dry mixes, ready-to-eat cereals and soy.

- 40. (Currently Amended) A refrigerated uncooked or bakeable dough product comprising bleached bran derived from a cereal grain, the bleached bran produced by treating bran with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching process <u>under a pressure of about 103.4 to 138 kPA (15 to 20 psi) and a temperature greater than 100 °C for no more than five (5) minutes</u>, the bleached bran having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran, the dough product suitable for use as an additive in foods.
- 41. (Currently Amended) A ready-to-eat cereal comprising bleached bran, the bleached bran produced by treating bran with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching process <u>under a pressure of about 103.4 to 138 kPA (15 to 20 psi) and a temperature greater than 100 °C for no more than five (5) minutes, the bleached bran having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran.</u>
- 42. (Currently Amended) A cooked cereal dough comprising bleached bran, the bleached bran produced by treating bran with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching process <u>under a pressure of about 103.4 to 138 kPA (15 to 20 psi) and a temperature greater than 100 °C for no more than five (5) minutes, the bleached bran having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran.</u>
- 43. (Previously Presented) The product of claim 21 wherein the hydrogen peroxide solution has a pH of about 6 to 7 and the aqueous alkaline solution is added in an amount sufficient to raise the pH of the native bran and hydrogen peroxide solution to about 9 to 9.5.

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44. (Previously Presented) The product of claim 43 wherein the hydrogen peroxide solution

is an aqueous solution having a concentration of between about 6 and 40%, further wherein the

hydrogen peroxide solution is added in amounts of about 1 to 20 parts of hydrogen peroxide

solution to about 100 parts of native bran.

45. (Canceled)

46. (Currently Amended) The product of claim 44 wherein the hydrogen peroxide solution

and alkaline solution are heated together with the bran under a pressure of about 103.4 to 138

kPA (15 to 20 psi) and at a temperature of about 120 to 130 °C for about one (1) to five (5)

minutes.

47. (Previously Presented) The product of claim 44 wherein the cereal grain is selected from

the group consisting of wheat, rice, barley, corn (maize), oats, triticale, amaranth, soybeans and

mixtures thereof.

48. (Previously Presented) The product of claim 47 wherein the cereal grain is red wheat or

white wheat.

49. (Previously Presented) The product of claim 48 wherein the cereal grain is a soft winter

white wheat that is milled to produce a light bran.

50. (Previously Presented) The product of claim 21 wherein the bleached bran product is

comprised of particles, each particle having a particle size of at least about 100 microns.

51. (Currently Amended) A bleached bran product comprising bleached bran derived from a

cereal grain, the bleached bran product produced by first treating bran with a chelating agent to

produce reduced transition metal content bran, the reduced transition metal content bran further

treated with a hydrogen peroxide solution and an aqueous alkaline solution in a wet bleaching

process under a pressure of about 103.4 to 138 kPA (15 to 20 psi) and a temperature greater than

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100 °C for no more than five (5) minutes, the bleached bran product having a water absorption value higher than native bran and an antioxidant activity at least 15 to 35% higher than native bran.

- 52. (Previously Presented) The product of claim 51 wherein the chelating agent is selected from the group consisting of orthophosphate, metaphosphate, pyrophosphate, polyphosphate, calcium EDTA and sodium EDTA.
- 53. (Previously Presented) The product of claim 52 wherein the chelating agent is calcium EDTA or sodium EDTA in a concentration of between about 0.02 and 0.1%.
- 54. (Currently Amended) The product of claim 51 wherein the reduced transition metal content bran is blanched to inactivate <u>indigenous</u> catalase and peroxidase enzymatic systems.
- 55. (Previously Presented) The product of claim 54 wherein the reduced transition metal content bran is blanched at a temperature of between about 75 to 85 °C for about three (3) to ten (10) minutes, further wherein the residual enzyme activity after blanching is below about 10 CIU/g bran.
- 56. (Previously Presented) The product of claim 51 wherein the bleached bran product is treated with catalase to remove residual hydrogen peroxide.
- 57. (Previously Presented) The product of claim 56 wherein between about 0.1 and 0.4% of catalase, by weight, is added to the bleached bran product at a temperature of about 60 °C, further wherein the hydrogen peroxide concentration is reduced to less than about five (5) PPM following catalase treatment.
- 58. (Currently Amended) A bleached bran product comprising bran derived from a cereal grain, the bran bleached in a wet bleaching process with an aqueous alkaline solution and a combination bleaching agent selected from the group consisting of hydrogen peroxide, ozone or

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and peracetic acid under a pressure of about 103.4 to 138 kPA (15 to 20 psi) in the presence of

heat to produce the bleached bran product.

59. (Canceled)

60. (Previously Presented) A bleached bran product comprising bleached bran derived from

a cereal grain, the bleached bran product produced by treating bran with a hydrogen peroxide

solution and an aqueous alkaline solution in a wet bleaching process, followed by an ozone

treatment, the bleached bran product having an antioxidant activity at least 15 to 35% higher than

native bran and suitable for admixing with whole wheat flour to produce white whole wheat

flour having an L value on the Hunter scale of at least about 82.

61. (Previously Presented) The bleached bran product of claim 60 wherein the bran is treated

with about 0.1 to 2% ozone, by weight, at a pH of about 4 to 5.

62. (Previously Presented) The bleached bran product of claim 61 wherein the reaction of

ozone and bran is in the range of about 90 to 95%.

63. (Previously Presented) The bleached bran product of claim 21 wherein bitter flavor

components present in the native bran are reduced.

Please add the following new claims:

64. (New) The product of claim 21 wherein the hydrogen peroxide solution and alkaline

solution are heated together with the bran at a temperature of about 122 °C for about two (2)

minutes.

65. (New) The product of claim 31 wherein the hydrogen peroxide solution and alkaline

solution are heated together with the bran at a temperature of about 122 °C for about two (2)

minutes.

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66. (New) The product of claim 38 wherein the hydrogen peroxide solution and alkaline solution are heated together with the bran at a temperature of about 122 °C for about two (2)

minutes.

67. (New) The product of claim 51 wherein the hydrogen peroxide solution and alkaline

solution are heated together with the bran at a temperature of about 122 °C for about two (2)

minutes.

68. (New) The product of claim 51 wherein the alkaline solution contains an alkaline

susbstance selected from the group consisting of sodium hydroxide, potassium hydroxide and an

alkaline salt.

69. (New) The product of claim 68 wherein the alkaline salt is sodium carbonate or

polyphosphate.

70. (New) The product of claim 69 wherein the polyphosphate is trisodium phosphate.

71. (New) The product of claim 58 wherein the bran is bleached at a temperature in excess

of 100 °C for no more than five (5) minutes.

72. (New) The product of claim 60 wherein the bran is also treated with paracetic acid in the

wet bleaching process.

73. (New) The product of claim 60 wherein the bran is also treated with ozone in the wet

bleaching process.